(User: Customer This Issue Prsht Rev. First Issue Previous Run Written By Checked & Approved By Comment

Tuesday, 1/8/2008 1:20:09 PM Kim Johnston

Process Sheet

Drawing Name

Part Number

Drawing Number

Project Number

: CU-DAR001 Dart Helicopters Services

Job Number : 36665

: 10290 **Estimate Number** P.O. Number

: 1/8/2008

: NC

: // : 34513 S.O. No. :

Est Rev:B

Type

: Est Rev:Pick:A 04.02.18

ECN 1060 07-11-12

: MACHINED PARTS

Drawing Revision

Material Due Date

New issue KJ/DS

DD verified by:EC

: 2/15/2008

: N/A

: E

: D3121144

: D3121 REV E

: BRACKET ASSEMBLY

Qty:

Each

Additional Product

Job Number:



Seq. #:

Machine Or Operation:

17-4 SS Bar

Description:

1.0

M174B1000X02000



Comment: Qty.:

0.3864 f(s)/Unit

Total:

2.3184 f(s)

Material: 17-4 SS Bar per AMS 5604/5643

(M17-4-B1.000x02.000) Identify for D3121-114 Batch: MIO2741

2.0

BAND SAW

Comment: BAND SAW

Cut blanks: (1.000" x 2.000") 4.425" long

HAAS CNC VERTICAL MACHINING #1

3.0

HAAS1

Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine D3121-114 as per Folio FA330 and Dwg D3121 Identify as D3121-114

2-Deburr

3-Scribe batch number

INSPECT PARTS AS THEY COME OF

4.0

QC2

Comment: INSPECT PARTS AS THEY COME OFF MACHINE

Dart Aerospace Ltd

| W/O: | | WORK ORDER C | | | | | |
|---------|----------|------------------------|----------|------------|-------|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | Ву | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
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| | <u> </u> | | | \bigcirc | | <u> </u> | > 1 |
| Part No | : | PAR #: Fault Category: | NCR: Yes | No DQ | A: 17 | <u> </u> | 08/01/ |
| | | | | | | _ Date: _ | |

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | | |
|------|------|----------------------------------|----------------------|------------------------------|----------------|--------------|-----------------------|--------------------------|--|
| | - | Description of NC | | Corrective Action Section B | | Verification | | Approxial | |
| DATE | STEP | Section A | Initial Chief Eng | Action Description Chief Eng | Sign & Date | Section C | Approval Chief Eng | Approval QC Inspector | |
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NOTE: Date & initial all entries

Tuesday, 1/8/2008 1:20:09 PM Date: Kim Johnston User: **Process Sheet** Drawing Name: BRACKET ASSEMBLY Customer: CU-DAR001 Dart Helicopters Services Job Number: 36665 Part Number: D3121144 Job Number: Description: Seq. #: Machine Or Operation: SECOND CHECK 5.0 QC8 Comment: SECOND CHECK 6.0 D312121 Comment: Qty.: 2.0000 Each(s)/Unit 12.0000 Each(s) Total: Pick: Description Batch **Qty Part Number** Bolt 13 36668 2 D3121-21 7.0 D3121241 Bearing Assembly Comment: Qty.: 2.0000 Each(s)/Unit Total: 12.0000 Each(s) Pick: **Qty Part Number** Description Batch 2 D3121-241 Bearing Ass SMALL FAB 1 SMALL & MEDIUM FAB RESOURCE 1 8.0 Comment: SMALL & MEDIUM FAB RESOURCE 1 Assemble D3121-143 as per Dwg D3121. INSPECT WORK TO CURRENT STEP 9.0 QC5 6 Comment: INSPECT WORK TO CURRENT STEP 36 10.0 PACKAGING RESOURCE #1 Comment: PACKAGING RESOURCE #1 Identify and Stock Location: 11.0 QC21 Comment: FINAL INSPECTION/W/O RELEASE 2 08.01 Job Completion

| Dart Ae | rospace | Ltd | | | | | | |
|---------|---------|---------------------------------------|----------------------|------------------------------|----------------|---------------------|----------------------------------|-----------------------|
| W/O: | | · · · · · · · · · · · · · · · · · · · | WC | ORK ORDER CHANGES | | | | |
| DATE | STEP | PROCEDURE CHANGE | | | | Date (| Approva Chief Eng Prod Mgr | Approval QC Inspector |
| | | | | | | | | |
| | | | | | | | | |
| | , | | | · . | | | | |
| Part No | : | PAR #: | Fault Cate | gory: NO | CR: Yes | No DQA: | Date: | |
| | | | | | QA: N | C Closed: _ | Date: | |
| NCR: | | | NORK ORDI | ER NON-CONFORMANC | E (NCR |) | | |
| | | Description of NC | | Corrective Action Section B | | Verificat | ion Approva | i Approval |
| DATE | STEP | Section A | Initial Chief Eng | Action Description Chief Eng | Sign & Date | Sign & Section C Ch | | |
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NOTE: Date & initial all entries

| DART AEROSPACE LTD | Work Order: 3666 | 5 |
|------------------------------|--------------------|-------|
| Description: Bracket | Part Number: D3121 | -114_ |
| Inspection Dwg: D3121 Rev: P | Page | of 2 |

TIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

| | | | | | | · · · · · · · · · · · · · · · · · · · |
|-------------------|-------------------|---------------|--------|--------|------------|---------------------------------------|
| Drawing | Tolerance | Actual | Accept | Reject | Method of | Comments |
| Dimension | | Dimension | | | Inspection | |
| 0.080 | +/-0.010 | 000 | | | | |
| 0.300 | +/-0.010 | 385 | | | | |
| R0.375 | +/-0.010 | 八.3% | | | | |
| 1.54 | +/-0.030 | 1.543 | / | | | |
| 0.350 | +/-0.010 | (350) | | | | |
| R0.25 g | +/-0.0 3 0 | (350) R.25 | | | | |
| 4-600 | +/-0-030- | | | | | |
| Ø0.392 | +0.002/-0.000 | 0.392 | | | | |
| Ø0.201 | +0.005/-0.000 | 0.201 | / | | | |
| 0.100 | +/-0.010 | 100 | | | | AMP |
| | | | | | | |
| 2.540 | +/-0.010 | 2-540 | | | | |
| 1.590 | +/-0.010 | 1.590 | | | | |
| 0.160 | +/-0.010 | 160 | | | | |
| 0.400 | +/-0.010 | 1.222 | | | | |
| 1.220 | +/-0.010 | 1.222 | | | | |
| 1.600 | +/-0.010 | 1.558 | | | | |
| 3.80 | +/-0.030 | 3.870 | | | | |
| 1.800 | +/-0.010 | 1.797 | ./_ | | | |
| R0.50 @ | +/-0.030 | R.50 | | | x | |
| 0.130 | +/-0.010 | .127 | | | | |
| 3.41 | +/-0.030 | 3.390 | | | | |
| 3.65 | +/-0.030 | 3,640 | | | | |
| 2.24 | +/-0.030 | 2.240 | | | | |
| 45° | ADDITO | 450 | / | | | |
| R0.25 | +/-0.030 | R.25 | | | | |
| 3.97 | +/-0.030 | 297 | | | | |
| | | | | | | |
| R0.38 | +/-0.030 | 7.38 | | | | |
| Ø0.392 | +0.002/-0.000 | 0.392 | -/_ | | | |
| Ø0.201 | +0.005/-0.000 | 0.200 | | | | |
| 0=1005 | +4.0.040> | | | | | |
| 0.268 | +/-0.010 | 1269 | // | | , | |
| R0.260 | +/-0.010 | R.250 | | | | |
| 0.080 | +/-0.010 | .080 | | | | · · · · · · · · · · · · · · · · · · · |
| 0.300 | +/-0.010 | -707 | / | | | |



| DART AEROSPACE LTD | Work Order: | 36665 | |
|------------------------------|--------------|-------------|--|
| Description: Bracket | Part Number: | D3121-114 | |
| Inspection Dwg: D3121 Rev: 0 | | Page 2 of 2 | |

FIRST ARTICLE INSPECTION CHECKLIST String X First Article Prototype

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|----------------------|----------------|---------------------|--------|--------|-------------------------|----------|
| 0.381 | +/-0.010 | 380 | | | | |
| 0.201 | +/-0.010 | 380 | | | | |
| 0.580 | +/-0.010 | 580 | | | | |
| 0.400 | +/-0.010 | -376 | | | | |
| 100° | | 1000 | | | | |
| 032 | 10.000 - 0.010 | 252 | | | | |
| 0,0 | 17-0:010 | ,O32 | | | | |
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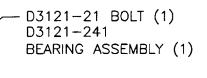
| Measured by: | SA | Audited by: | Prototype Approval: | N/A |
|--------------|----------|----------------|---------------------|-----|
| Date: | 08/01/22 | Date: 68/01/23 | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|---|------------|----------|
| Α | 03.12.08 | New Issue P/O D3121-144 | KJ/RF | |
| В | 04.05.05 | Dimensions changed/re-arranged per Dwg revision | KJ/JLM | 1 |
| С | 06.06.14 | Dwg Rev. updated | KJ/JLM 🔣 | Cid |



| DESIGN DRAWN BY | | DRAWN BY | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | | | | |
|-----------------|------|----------|---|--|--|--|--|
| CHEC | (ED | APPROVED | DRAWING NO. REV. E D3121 SHEET 1 OF 10 | | | | |
| DATE | | <u> </u> | TITLE SCALE | | | | |
| 07.1 | 1.07 | | BRACKET ASSEMBLY 1:2 | | | | |
| Α | | 02.04.15 | NEW ISSUE | | | | |
| В | | 03.01.16 | ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD -141/-143/-144/-145/-146 | | | | |
| С | | 04.02.17 | ADD CLEARANCE; USE -241 BEARING | | | | |
| D | | 06.05.17 | D3121-25 CAP WAS 1.024, NOW 1.000 | | | | |
| E | | 07.11.07 | ADD TOLERANCE TO 0.032 (DETAIL B) | | | | |

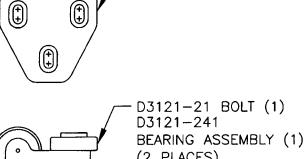




D3121-11 BRACKET

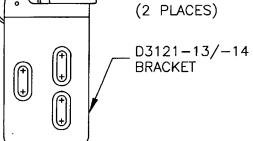
D3121-041 BRACKET ASSEMBLY

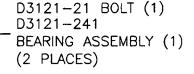
(REPLACES PREMIER P/N B30-23000-33)



D3121-043 (SHOWN) / D3121-044 (OPPOSITE) BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-37/-38)





D3121-15/-16 BRACKET

D3121-045 (SHOWN) / D3121-046 (OPPOSITE) BRACKET ASSEMBLY

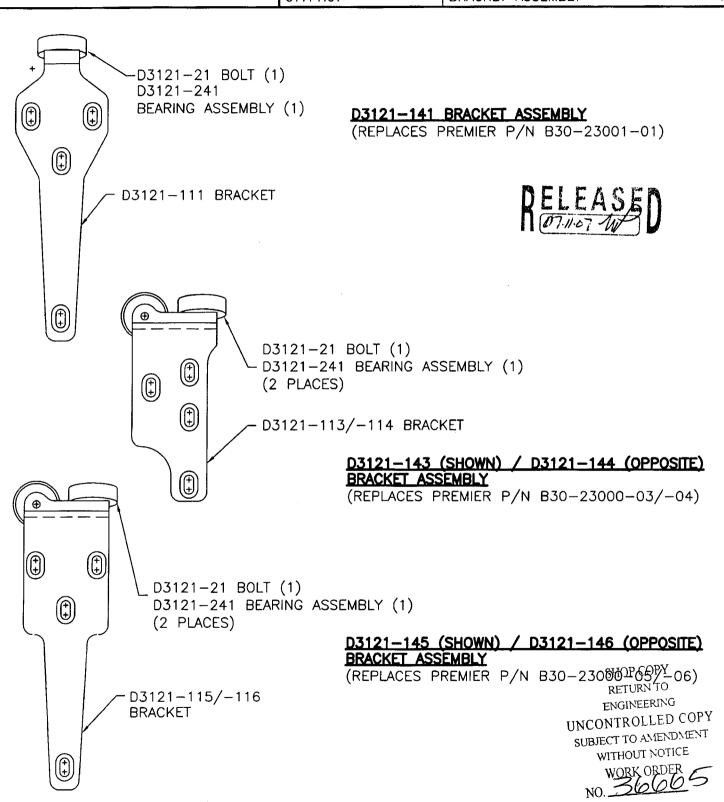
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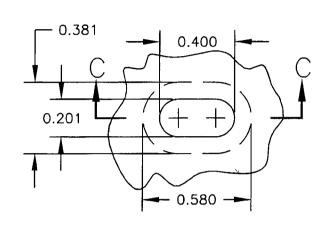
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| # | # | D3121 | SHEET 2 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 |

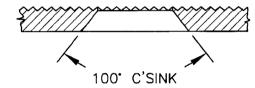




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| DATE | | TITLE | SCALE: |
| 07.11.07 | | BRACKET ASSEMBLY | 1:1 |

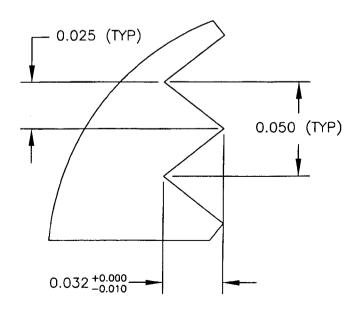






SECTION C-C

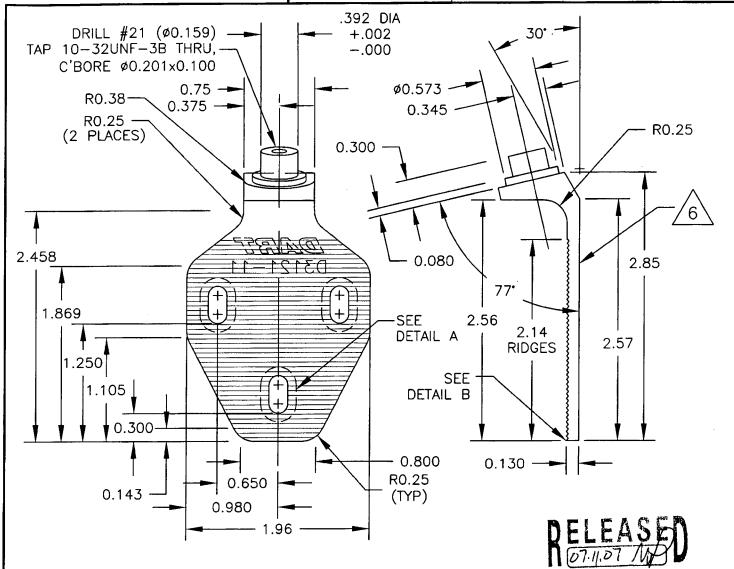
<u>DETAIL B:</u> RIDGE DETAIL PARTIAL SECTION SCALE 1:20



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| 1 4 | -# | D3121 | SHEET 4 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:1 |



D3121-11 BRACKET

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
MIN ULTIMATE TENSILE = 150 ksi
MIN YIELD TENSILE = 100 ksi

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

3) ALL DIMENSIONS ARE IN INCHES

4) BREAK ALL SHARP EDGES 0.005 TO 0.015

5) ENGRAVE DART P/N & LOGO AS SHOWN

6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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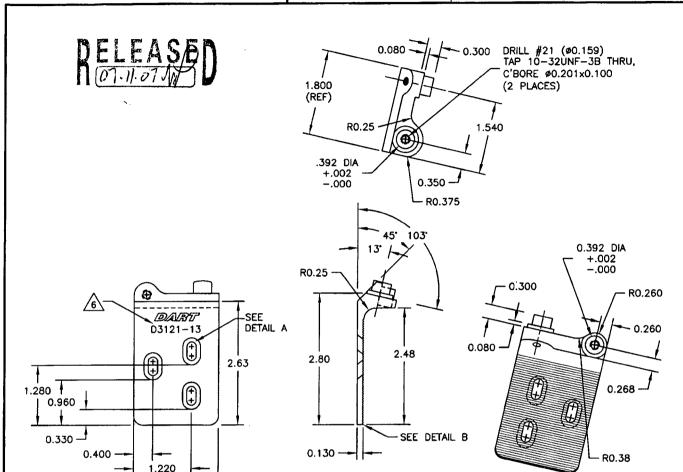
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| 4 | -tt | D3121 | SHEET 5 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 |



D3121-13 BRACKET (SHOWN) D3121-14 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
MIN ULTIMATE TENSILE STRENGTH = 150 ksi

MIN YIELD TENSILE STRENGTH = 100 ksi

- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN

- 1.800 -

6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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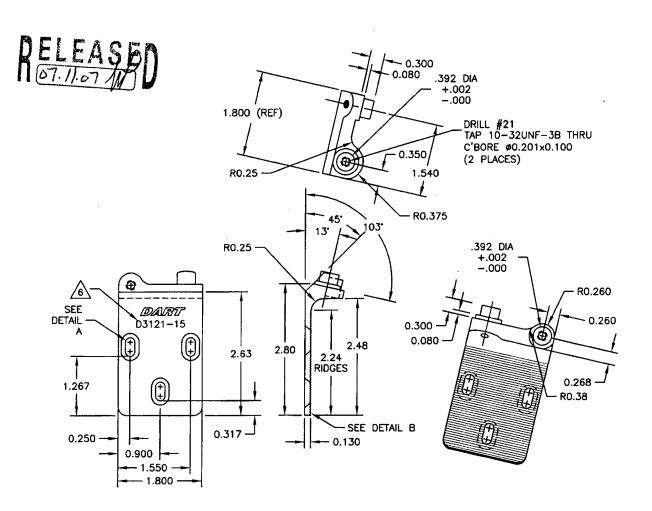
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| # | 4 | D3121 | SHEET 6 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 |



D3121-15 BRACKET (SHOWN) D3121-16 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)

MIN ULTIMATE TENSILE = 150 ksi MIN YIELD TENSILE = 100 ksi

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N AND LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

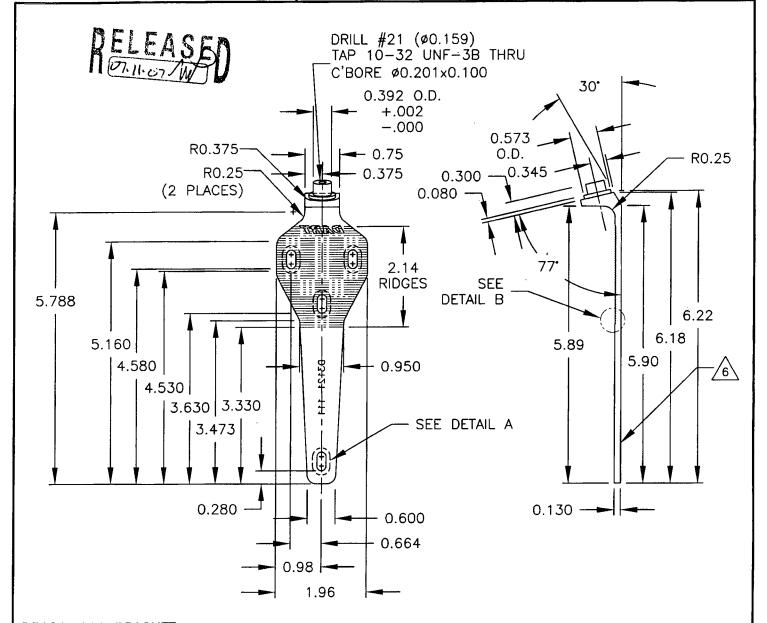
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| CHECKED _ | APPROVED, | DRAWING NO. | REV. E |
| # | - | D3121 | SHEET 7 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 |



D3121-111 BRACKET

1) REPLACES PREMIER P/N B32-23001-11

2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)

MIN ULTIMATE TENSILE = 150 ksi MIN YIELD TENSILE = 100 ksi

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHEWISE NOTED

4) ALL DIMENSIONS ARE IN INCHES

5) BREAK ALL SHARP EDGES 0.005 TO 0.015

6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN

7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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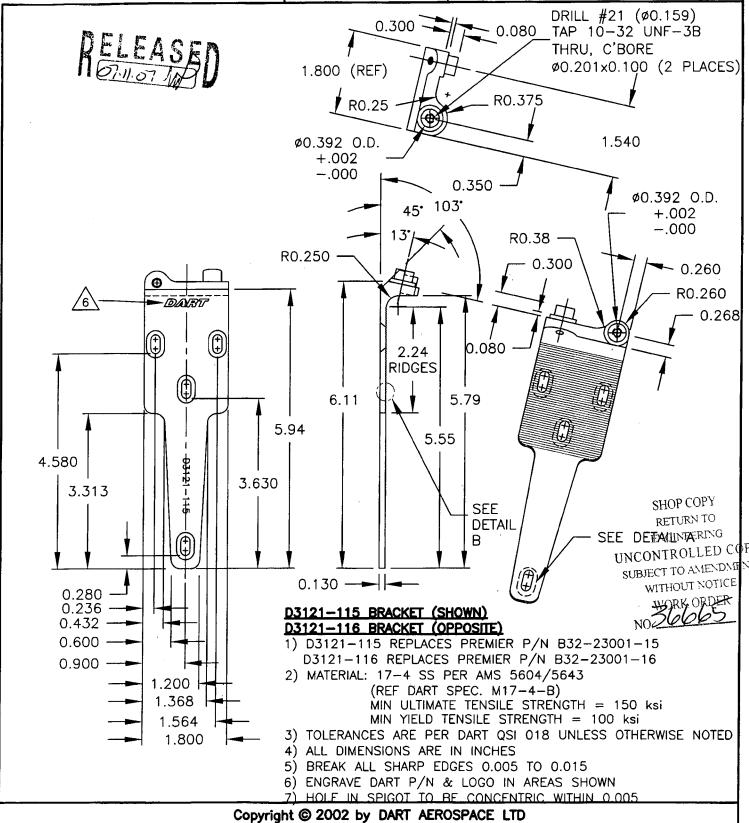
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WORK ORDER NO 36665

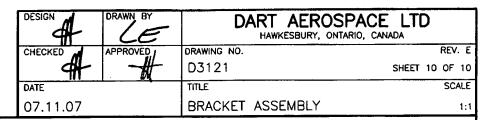
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| # | -#- | D3121 | SHEET 9 OF 10 |
| DATE | | TITLE | SCALE |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 |







D3121-21 BOLT (SCALE 1:1)

NONE

4) ALL DIMENSIONS ARE IN INCHES

OTHERWISE NOTED

1) MATERIAL: AISI 303 SS HEX, ANNEALED

3) TOLERANCES ARE PER DART QSI 018 UNLESS

5) BREAK ALL SHARP EDGES 0.005 TO 0.015

0.230±0.001 -

TAP 10-32

UNF-3A

0.050 TO 0.060

- 0.080

(REF DART SPEC. M303H0.500)

0.315

1.000 0.838

R0.063

±0.002

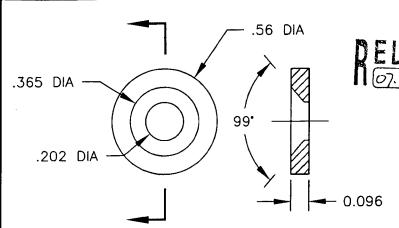
R0.010

0.865

±0.001

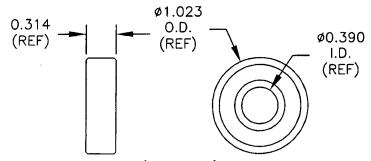
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FINISH:



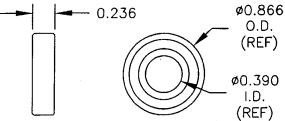
D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCÈS ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-19 BEARING (SCALE 1:1)

- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM FAFNIR P/N 9100KDD
- 2) ALL DIMENSIONS ARE IN INCHES



D3121-23 BEARING (SCALE 1:1)

1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z OR KML P/N 6900-ZZ

2) ALL DIMENSIONS ARE IN INCHES

D3121-25 CAP (SCALE 1:1)

- 1) MATERIAL: DELRIN ROD, Ø1.25 (REF DART SPEC. M-DELRIN-R1.250)
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

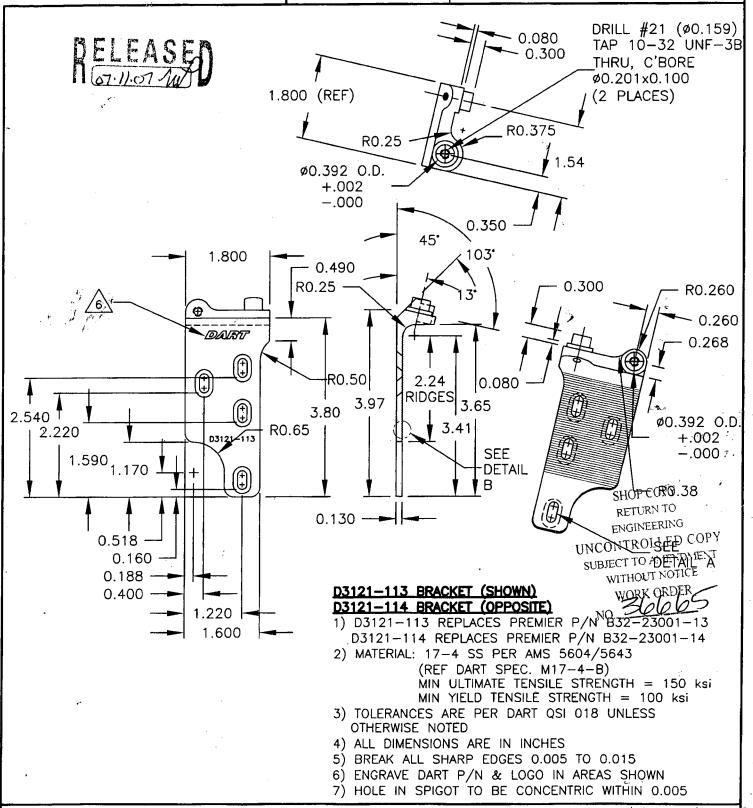


D3/21-241 BEARING ASSEBLY (SCALE 1:1)

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|-------------------|-----------|------------------|--|--|
| CHECKED | APPROVED | DRAWING NO. | REV. E | |
| 4 | -# | D3121 | SHEET 8 OF 10 | |
| DATE | | TITLE | SCALE | |
| 07.11.07 | | BRACKET ASSEMBLY | 1:2 | |



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